

Mount Vernon Memorial Highway: Alexandria Avenue Bridge  
Carries Alexandria Avenue over the Mount Vernon Memorial  
Highway 3.5 miles south of I-95  
Alexandria Vicinity  
Fairfax County  
Virginia

HAER No. VA-42B

HAER

VA,

30-\_\_\_\_\_,

6-B-

PHOTOGRAPHS  
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
Department of the Interior  
Washington, DC 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

MOUNT VERNON MEMORIAL HIGHWAY:  
ALEXANDRIA AVENUE BRIDGE

HAER No. VA-42B

HAER  
VA,  
30-\_\_\_\_\_,  
6-B-

Location: Carries Alexandria Avenue over the George Washington Memorial Parkway. 3.5 miles south of I-95 and 5.1 miles north of Mount Vernon in Fairfax County, Virginia.

UTM: 18/321930/4290460  
Quad.: Mount Vernon

Date of Construction: Designed 1929, Completed 1932

Architect: Gilmore D. Clarke

Engineer: E.J. Budge, Resident Engineer  
E.W. Armstrong, Assistant Resident Engineer  
J.V. McNary, Senior Engineer,  
U.S. Bureau of Public Roads

Contractor: Merritt-Chapman & Scott Corporation, New York, New York

Present Owner: George Washington Memorial Parkway  
National Park Service  
Department of the Interior

Present Use: Vehicular bridge

Significance: The Alexandria Avenue Bridge, also known as the Wellington Underpass, was one of the first group of parkway bridges to be operated and maintained by the U.S. Government. The appearance of this bridge is similar to many of the other bridges along the Mount Vernon Memorial Highway because of its native stone facing. Its uniqueness lies below the surface, as it is a two-hinged, rigid-frame, reinforced concrete bridge.

Historian: Elizabeth M. Nolin, 1988

The Alexandria Avenue Bridge is a grade separation structure which carries Alexandria Avenue at Wellington Villa, Virginia over the Mount Vernon Memorial Highway (see HAER No. VA-42). The bridge is a two-hinged, rigid-frame, reinforced concrete structure that is faced with native stone. The masonry for the bridge is divided into two categories. The stone masonry ranges in color from dark green to grey-blue, to pink, whereas the dimensioned masonry is a light grey granite.<sup>1</sup> The dimensioned masonry is used for the arch ring, quoins on the battered abutments, and the cap stones.<sup>2</sup> A clear span of forty-six feet wide is provided for Mount Vernon Memorial Highway which passes underneath. The clear width of the roadway deck measures thirty-four feet, with thirty-six feet between parapets.<sup>3</sup>

Excavation for this bridge was done completely with hand labor and began on July 16, 1930, with completion on August 23. Concrete for the west abutment footing was poured on July 29, and for the east abutment footing on August 13. Due to the reinforcing steel of the footing which extended into the abutment and on into the frame, centering was installed to hold the steel in place. After the footings were poured for both the abutments and the lower wing walls, the laying up of the masonry started. This was done in an alternating fashion where the masonry would be set, up to a certain height, and then concrete would be poured to the same height, then more masonry laid, and so on. To allow the wing walls to be constructed separately from the abutments, vertical construction joints were made in each pilaster parallel to and five feet from the face of the abutment.<sup>4</sup> The east and west abutments were poured consecutively on September 12 and 13. Construction then began on the arch centering. During this process the stone and concrete masonry was built up to the height of the curb. The ring stones were set in place and grouted from behind, upon completion of the centering. After the centering was sprung the ring stones were pointed with mortar.

The concrete arch was poured in three phases. The first section to be poured was the south side of the arch in towards the center of the bridge, this was completed on October 27. The next section was the north side (completion on October 28), with the last being the section in the middle being completed on October 29. The stonework for the spandrel walls was then

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<sup>1</sup> U.S. Department of Agriculture, Specifications for Bridges. Bureau of Public Roads, (1930): 51-56.

<sup>2</sup> U.S. Department of Agriculture, Mount Vernon Memorial Highway, Drawings for Wellington Overpass. Title sheet #G-562-564. December, 1929: G-562.

<sup>3</sup> U.S. Department of Agriculture, Mount Vernon Memorial Highway Final Construction Report on Unit III Bridges. Bureau of Public Roads, (1932): 128.

<sup>4</sup> ibid, 129.

completed with the concrete being poured behind the walls on November 10.<sup>5</sup>

Membrane waterproofing was then installed behind the wing, abutment and spandrel walls, and also the extrados of the arch. The area between the wing walls was then backfilled with material from the excavation and other fill. The backfilling was completed on December 3. Stone masons completed the parapets on December 5. The spandrels were filled by December 6, and the centers removed December 8. The concrete surface of the abutment breast walls were given a bush hammered finish, this being completed by July 3, 1931. Under an extra work, order the concrete soffit of the arch was also bush hammered, and this was completed September 15, 1931.<sup>6</sup> Under another extra work order, tile drains were installed to connect weep holes in the abutments to a roadway drain.

The architect/designer for this bridge, along with the other parkway bridges, was Gilmore D. Clarke. Clarke gained recognition as a "specialist" in this type of landscape architecture while designing the landscape, roads and bridges for the Bronx River Parkway. During his consultation work on the Mount Vernon Memorial Highway, Clarke was a member of the Westchester County Park Commission. Engineers for this project were E.J. Budge, Resident Engineer and E.W. Armstrong, Assistant Resident Engineer.<sup>7</sup> The total cost of the Alexandria Overpass, including extra work orders was \$43,761.89.<sup>8</sup>

The intent of the designers of the Mount Vernon Memorial Highway was that the landscape surrounding the parkway would be the dominant feature. Therefore this bridge, and the other bridges on the parkway, were designed to blend into the surrounding landscape. This goal was achieved by keeping the bridge simple in design, and in the case of the Alexandria Overpass, facing the concrete with native stone and bush hammering all other exposed concrete surfaces.

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<sup>5</sup> ibid, 130.

<sup>6</sup> ibid, 131.

<sup>7</sup> ibid, 132.

<sup>8</sup> ibid, 133.

Bibliography

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